

REMARKS

Claims 61-82 are pending. Claims 61, 64-66, 73, 74, 76, and 77 are amended, claims 68 and 84 are canceled (claim 84 was previously added in Applicants' July 12, 2007 response). No new matter is added by these amendments, support therefore being found throughout the application as filed (e.g. see page 6, lines 14-23).

1. 35 U.S.C. §103 REJECTIONS

Motamedi, Swanson, and Altman

Claims 61-63, 78-81, and 83 are rejected under 35 U.S.C. §103(a) over U.S. Patent No. 6,143,019 to Motamedi et al. (hereinafter "Motamedi"), U.S. Patent No. 6,023,638 to Swanson (hereinafter "Swanson"), and U.S. Patent No. 6,577,895 to Altman (hereinafter "Altman").

Applicants' amended independent claim 61 provides a non-thermal method for treating and/or curing cardiac arrhythmias. The method comprises administering a photosensitizing agent to at least one pulmonary vein, inserting an illumination device into the at least one pulmonary vein ostia before, during, or after administration of the photosensitizing agent, the illumination device comprising a fiberoptic housed within a balloon; inflating the balloon to achieve circumferential ostial contact in the pulmonary vein ostia; and during and/or after the photosensitizing agent is administered, delivering illumination from the fiberoptic through the balloon so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Motamedi, on the other hand, describes a method of treating cardiac arrhythmia by positioning the distal end of an apparatus on the endocardium, extending the distal end of the conductor past the distal end of the catheter and into the tissue, and transmitting ablating energy through the conductor into the tissue. In certain embodiments, the tissues are heated to about 40°C by introducing the catheter tip into the myocardium. Motamedi mentions the use of the device to deliver light for photodynamic processes.

However, Motamedi clearly does not teach or suggest a method wherein an illumination device comprising a fiberoptic housed within a balloon is inserted into a pulmonary vein ostia,

inflating the balloon to achieve circumferential ostial contact in the pulmonary vein ostia, and delivering illumination from the fiberoptic through the balloon so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium. Rather, Motamedi's method specifically provides for the ablation of intramyocardial tissue.

Swanson does not remedy these deficiencies. Swanson describes a method of conducting diagnostic testing of myocardial tissue. Swanson does not teach or suggest a method wherein an illumination device comprising a fiberoptic housed within a balloon is inserted into a pulmonary vein ostia, inflating the balloon to achieve circumferential ostial contact in the pulmonary vein ostia, and delivering illumination from the fiberoptic through the balloon so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Altman also does not remedy these deficiencies. Altman describes a methods for testing a pulmonary vein to determine whether or not ablation would be effective in terminating atrial fibrillation. A balloon catheter is used to deliver fluid into the pulmonary vein to inhibit the electrical impulses generated by the target pulmonary vein. However, Altman does not teach or suggest a method wherein an illumination device comprising a fiberoptic housed within a balloon is inserted into a pulmonary vein ostia, inflating the balloon to achieve circumferential ostial contact in the pulmonary vein ostia, and delivering illumination from the fiberoptic through the balloon so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Thus, claim 61 is patentable over Motamedi, Swanson, and Altman. Claims 62, 63, 78-81, and 83 depend from claim 61 and, thus, also are patentable over Motamedi, Swanson, and Altman. Reconsideration and withdrawal of the rejection is respectfully requested.

Motamedi, Swanson, Altman, and Leone

Claims 64-77 are rejected under 35 U.S.C. §103(a) in view of Motamedi, Swanson, Altman, and U.S. Patent No. 5,709,653 to Leone (hereinafter “Leone”). Applicants respectfully traverse.

As set forth above, Motamedi, Swanson, and Altman fail to teach or suggest a method wherein an illumination device comprising a fiberoptic housed within a balloon is inserted into a pulmonary vein ostia, inflating the balloon to achieve circumferential ostial contact in the pulmonary vein ostia, and delivering illumination from the fiberoptic through the balloon so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Leone does not remedy these deficiencies. Leone describes a photodynamic balloon catheter that is used to treat diseased tissue 22 (figs. 4-5). Leone is not at all directed to the treatment of cardiac arrhythmias by the use of photodynamic therapy to electrically isolate the pulmonary vein from the left atrium. Leone does not teach or suggest a method wherein an illumination device comprising a fiberoptic housed within a balloon is inserted into a pulmonary vein ostia, inflating the balloon to achieve circumferential ostial contact in the pulmonary vein ostia, and delivering illumination from the fiberoptic through the balloon so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Further, Applicants respectfully submit that there is no motivation to modify Motamedi’s method in view of Swanson, Altman, and Leone, as proposed by the Office. Applicants maintain that the proposed modification of Motamedi’s device and method would so alter Motamedi that the broad function of Motamedi (the ablation of deep intramyocardial tissue) could not be carried out if Motamedi was modified so as to perform Applicant’s claimed method.

Thus, claim 61 is patentable over Motamedi, Swanson, Altman, and Leone. Claims 64-77 depend from claim 61 and, thus, also are patentable over Motamedi, Swanson, Altman, and Leone. Reconsideration and withdrawal of the rejection is respectfully requested.

Motamedi, Swanson, Altman, and Rice

Claim 82 is rejected under 35 U.S.C. §103(a) in view of Motamedi, Swanson, Altman, and U.S. Patent No. 6,200,309 to Rice (hereinafter “Rice”). Applicants respectfully traverse.

As set forth above, Motamedi, Swanson, and Altman fail to teach or suggest a method wherein an illumination device comprising a fiberoptic housed within a balloon is inserted into a pulmonary vein ostia, inflating the balloon to achieve circumferential ostial contact in the pulmonary vein ostia, and delivering illumination from the fiberoptic through the balloon so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Rice does not remedy these deficiencies. Rice describes a laser system for irradiating tumor cells in the presence of a photosentizier compound. Rice’s laser system is adapted to cover the entire phototherapeutic spectral region (generally 500-1600nm).

Accordingly, Applicants respectfully submit that claim 61 is patentable over Motamedi, Swanson, Altman, and Rice. Claim 82 depends from claim 61 and, likewise, is patentable over Motamedi, Swanson, Altman, and Rice. Reconsideration and withdrawal of the rejection is respectfully requested.

CONCLUSION

Applicant respectfully requests early consideration and allowance of the subject application.

If for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. 04-1105.

Should the Examiner wish to discuss any of the amendments and/or remarks made herein, the undersigned attorney would appreciate the opportunity to do so.

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